AMENDMENTS TO THE SPECIFICATION:

Please amend the title appearing on page 1 of the specification as follows:

A1 ~~METHOD AND~~ APPARATUS FOR CONTROLLING THICKNESS UNIFORMITY OF ELECTROPLATED ~~LAYER~~ AND ELECTROETCHED LAYERS

Please amend paragraphs 12, 13, 56, 64, 68, and 69 as follows:

[0012] Co-pending U.S. Patent Application Serial No. 09/511,278, entitled "Pad Designs and Structures for a Versatile Materials Processing Apparatus" filed February 23, 2000, now U.S. Patent 6,413,388 B1, which is commonly owned by the assignee of the present invention, describes various shapes and forms of holes in pads through which electrolyte flows to a wafer surface.

A2

[0013] Another invention described in U.S. Patent Application Serial No. 09/740,701, entitled "Plating Method and Apparatus That Creates a Differential Between Additive Disposed on a Surface and a Cavity Surface of a Work Piece Using an External Influence", filed December 18, 2000, provides a method and apparatus for "mask-pulse plating" a conductive material onto a substrate by intermittently moving the mask, which is placed between the substrate and the anode, into contact with the substrate surface and applying power between the anode and the substrate during the process. Yet another invention described in U.S. Patent Application Serial No. 09/735,546, entitled "Method of and Apparatus for Making

Electrical Contact to Wafer Surface For Full-Face Electroplating or Electropolishing", filed December 14, 2000, now U.S. Patent 6,482,307, provides complete or full-face electroplating or electropolishing of the entire wafer frontal side surface without excluding any edge area for the electrical contacts. This method uses an anode having an anode area, and electrical contacts placed outside the anode area. During the process, the wafer is moved with respect to the anode and the electrical contacts such that a full-face deposition over the entire wafer frontal surface is achieved. Another non-edge-excluding process described in U.S. Patent Application Serial No. 09/760,757, entitled "Method and Apparatus for Electrodeposition of Uniform Film with Minimal Edge Exclusion on Substrate", filed January 17, 2001, also achieves full-face deposition with a system having a mask or a shaping plate placed between the wafer frontal surface and the anode. The mask contains asperities allowing electrolyte flow. In this system, the mask has a larger area than the wafer surface. The mask is configured to have recessed edges through which electrical contacts can be contacted with the front surface of the wafer. In this system, as the wafer is rotated, the full surface of the wafer contacts with the electrolyte flowing through the shaping plate, achieving deposition.

A2 Cont'd

A3

[0056] The mesh 115 may have first and second sections 115a and 115b that are electrically isolated from each other by an isolation member 115c. The isolation member 115c may be a gap separating both sections. The first section 115a may be connected to a first control power source V1 and the

second section may be connected to a second control power source V2. If the control power supplies ~~in part~~ impart a negative voltage on the mesh sections, this results in some material deposition on the sections 115a and 115b during the electrodeposition, i.e. some deposition is "stolen" directly across from these sections. On the other hand, if a positive voltage is applied to the mesh with respect to the wafer surface, the section of the wafer across from the section of the mesh with positive voltage receives more plating. As will be described below, with the applied power V1 and in combination with the functionalities of the mask asperities, the first section 115a of the mesh 115 may, for example, control the thickness at the periphery ~~of the~~ of the front surface 108a of the wafer 108. In this respect, the second power V2 on the second section ~~115a~~ 115b controls the thickness on the center or near center regions of the front surface 108a. During the deposition process, the electrolyte 118 is pumped into the anode cup 116 through a liquid inlet 121 in the direction of arrow 122, and then in the direction of arrows 123 so as to reach and wet the surface 108a of the wafer 108 which is rotated. The anode 112 is electrically connected to a positive terminal of a power source (not shown) through an anode connector 124. The wafer 108 is connected to a negative terminal of the power source (not shown). The anode 112 may have holes in it (not shown). Additionally, the anode may have an anode bag or filter around the anode to filter particles created during the deposition process. The mask plate 114 and the anode cup 116 may have bleeding openings (not shown) to control the flow of electrolyte.

A3 Cont'd

[0064] Figure 10 shows one embodiment of energizing the sections of the mesh described in the previous embodiments. In this embodiment, an exemplary mesh 150 may be interposed between a top portion 152a and a bottom portion 152b of a mask plate ~~152~~. The mask plate ~~152~~ comprises a plurality of asperities 154 defining active areas 156 on the mesh 150. The mesh comprises a first or peripheral section 150a and a second or central section 150b which are isolated from one another by an isolation member 150c. A first power source Va is connected to a wafer 158, having a conductive surface 158a and an anode of an anode cup (not shown) of an electrodeposition system such as those described with regard to Figures 3-4. The first power source Va may also be connected to the first section 150a or the second section 150b of the mesh 150 through a switch S2. A second power source Vb is connected to the wafer 158 and the first section 150a or the second section 150b of the mesh 150 through the switch S1.

A4

[0068] Everything can be done with one power supply if many switches are used, as shown in Figure 11. For example, looking at one ~~macro~~ micro-plating cell M_1 as shown in ~~Figures 11-14, in~~ Figure 12, switch S_1, can be used to change the amount of deposition on the cathode section over micro-plating cell M_1. In one case, shown in Figure 13, when the switch S_1 is switched to the V_A position, mesh M_1 is at potential V_A, and copper plates both from the mesh to the cathode and from the anode to the cathode.

A5

[0069] When the switch S_1 is switched to the V_C position as shown in Figure 14, the mesh M_1 is at a cathode ~~position~~

A5 cont'd

potential and copper substantially plates to the mesh. To control thicknesses on different sections of the wafers, the duty cycles of switched meshes can be modulated in these regions.
